

TECHNICAL INFORMATION
AND SERVICE DATA

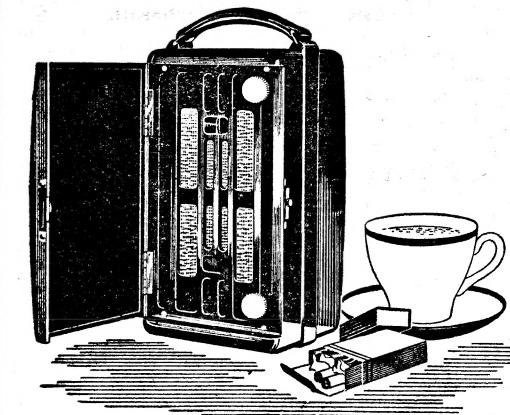
PERSONAL PORTABLE



Model 450-P

FOUR VALVE, BROADCAST
BATTERY OPERATED SUPERHETERODYNE

ISSUED BY
AMALGAMATED WIRELESS (A/SIA.) LTD.



ELECTRICAL SPECIFICATIONS.

FREQUENCY RANGE	1600-540 Kc/s (187.5-555M)	VALVE COMPLEMENT:	LOUDSPEAKER
INTERMEDIATE FREQUENCY	455 Kc/s	(1) 1R5 Converter	(Permanent Magnet): 3½ inch—Code No. BC1.
BATTERY COMPLEMENT.....	"A" Batteries: 2-1.5 volt torch cells	(2) IT4 I.F. Amplifier	Transformer XJ1
	"B" Battery: 1-67½ volt Minimax	(3) 1S5 Det., A.V.C., A.F. Amplifier	V.C. Impedance 3 ohms at 400 C.P.S.
BATTERY CONSUMPTION	"A" Battery: 250 mA	(4) 3S4 Output	Undistorted Power Output: 70 milliwatts
	"B" Battery: 8.0 mA		Controls: Tuning—top Volume—bottom.

MECHANICAL SPECIFICATIONS.

	Height	Width	Depth	
Cabinet Dimensions (inches)	8½	4½	4½	Weight (Net lbs.) — — — 5
Carton Dimensions (inches).....	9½	5	5	Cabinet Finish Moulded Plastic

GENERAL DESCRIPTION.

The model 450-P is a Personal Portable receiver housed in a most attractive moulded cabinet. Cabinet colours are: Ivory, Walnut, Burgundy and Black. Combinations of the above colours are also available—such as Black and Ivory, etc.

Features of design include: Tropic proof construction, automatic volume control, magnetic cores in I.F. transformers and oscillator coil, automatic ON/OFF switch operated by the front lid, built-in loop aerial.

ALIGNMENT PROCEDURE.

Manufacturers' Setting of Adjustments.

The receiver is tested by the manufacturers with precision instruments, and all adjusting screws are sealed. Re-alignment should be necessary only when components in tuned circuits are repaired or replaced, or when it is found that the seals over the adjusting screws have been broken.

It is especially important that the adjustments should not be altered unless in association with the correct testing instruments listed below.

For all alignment operations, except aerial stage, connect the "low" side of the signal generator to the receiver

chassis and keep the generator output as low as possible to avoid A.V.C. action. Also, keep the volume control in the maximum clockwise position.

Testing Instruments.

(1) A.W.A. Junior Signal Generator, type 2R39II, or

(2) A.W.A. Modulated Oscillator, type J6726.

If the modulated oscillator is used, connect an 0.25 megohm non-inductive resistor across the output terminals.

(3) A.W.A. Output Meter, type 2M8832.

ALIGNMENT TABLE.

Order	Connect "high" side of generator to:	Tune Generator to:	Tune Receiver Dial to:	Adjust for maximum peak output:
1	Aerial Section of Gang (Front portion)	455 Kc/s	540 Kc/s	L7 (core)
2	Aerial Section of Gang (Front portion)	455 Kc/s	540 Kc/s	L6 (core)
3	Aerial Section of Gang (Front portion)	455 Kc/s	540 Kc/s	L5 (core)
4	Aerial Section of Gang (Front portion)	455 Kc/s	540 Kc/s	L4 (core)
Repeat above adjustments until the maximum output is obtained.				
5	Inductively coupled to loop *	600 Kc/s	600 Kc/s	L.F. Osc. Core Adj. (L2)†
6	Inductively coupled to loop *	1500 Kc/s	1500 Kc/s	H.F. Osc. Adj. (C6)
7	Inductively coupled to loop *	1500 Kc/s	1500 Kc/s	H.F. Aerial Adj. (C2)

Repeat 5, 6 and 7 until the maximum output is obtained.

†Rock the tuning control back and forth through the signal.

*A coil comprising 3 turns of 16 gauge D.C.C. wire and about 6 inches in diameter should be connected between the output terminals of the test instrument and placed co-axial with the loop and distant not less than 6 inches from it.

CHASSIS REMOVAL.

Remove the back lid and withdraw the batteries from their compartments.

Open the front lid and pull the knobs straight off their spindles. Remove the four mounting screws from the front panel and withdraw the chassis from the cabinet.

Care should be taken when removing the chassis that the plunger operating the ON/OFF switch does not fall out and become lost.

When service has been completed make sure that the plunger is in its correct position before replacing the chassis.

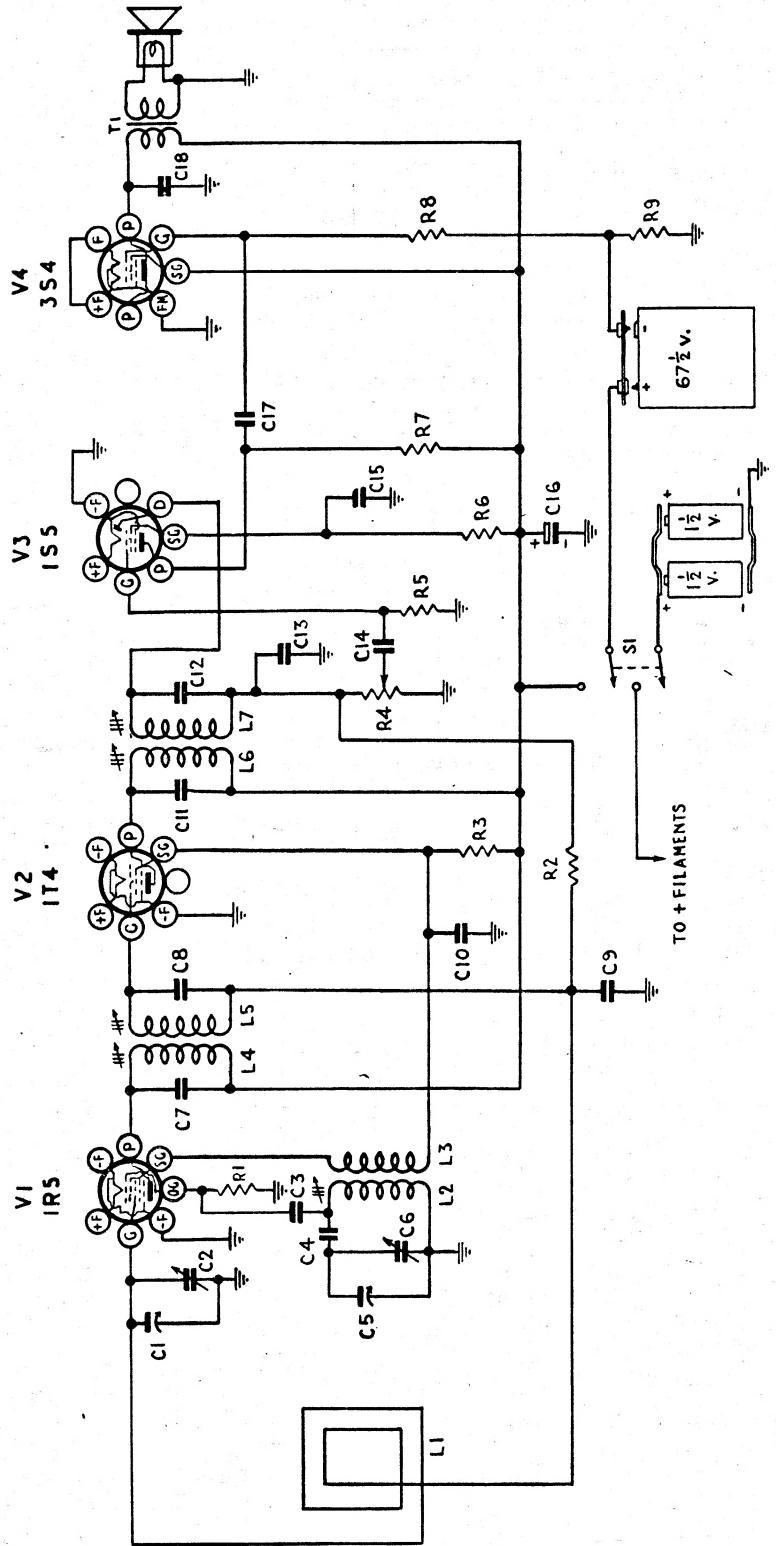
SOCKET VOLTAGES

Valve	Bias Volts	Screen Grid to Chassis Volts	Anode to Chassis Volts	Anode Current mA	Heater Volts
IR5 Converter	0	30	58	0.5	1.4
IT4 I.F. Amp.	0	30	58	1.0	1.4
IS5 Det., A.V.C., A.F. Amp.	0	20*	25*	0.04	1.4
3S4 Output	-7.0	58	56	5.0	1.4

Total H.T. Current—8.0 mA D.C.

*Calculated from measured current. An ordinary voltmeter will register a lower value.

Measured with no signal input.



Owing to an unavoidable shortage of 3S4 valves, a 1S4 has been used in some receivers.

If it is necessary to replace the 1S4 with a 3S4, the following must be done:

Disconnect the lead connecting pin 7 on the output valve socket to pin 7 on the 1S5 socket and remove the insulating sleeve.

Then, reconnect the lead from pin 7 to pin 1 on the output valve socket and thence to pin 7 on the 1S5 socket.
A 3S4 valve may now be plugged in and the receiver operated as before.

CIRCUIT CODE MODEL 450-P

Code No.	Description'	Part No.	Code No.	Description	Part No.	Code No.	Description	Part No.
INDUCTORS.								
L1	Tuned Loop 1600-540 Kc/s	R8	2.5 megohms $\frac{1}{2}$ watt	C12	50 $\mu\mu$ F mica	C13	100 $\mu\mu$ F mica	
L2, L3	Oscillator coil 1600-540 Kc/s	R9	800 ohms $\frac{1}{2}$ watt	C14	0.0025 μ F 600 v. working	C15	0.025 μ F 400 v. working	X11
L4, L5	1st I.F. Transformer	C1	12-450 $\mu\mu$ F tuning (ganged)	18620	C16 20 μ F 200 P.V. electrolytic	C17	0.0025 μ F 600 v. working	SWITCHES.
L6, L7	2nd I.F. Transformer	C2	5-20 $\mu\mu$ F trimmer (on gang)		C18	0.01 μ F 600 v. working	S1	Battery switch
RESISTORS.								
R1	0.1 megohm $\frac{1}{2}$ watt	C4	490 $\mu\mu$ F mica $\pm 2\frac{1}{2}\%$ padde	18620				LOUDSPEAKER.
R2	6.3 megohms $\frac{1}{4}$ watt	C5	12-450 $\mu\mu$ F tuning (ganged)					Loudspeaker transformer
R3	16,000 ohms $\frac{1}{2}$ watt	C6	5-20 $\mu\mu$ F trimmer (on gang)					X11
R4	1 megohm volume control	C7	50 $\mu\mu$ F mica					SWITCHES.
R5	10 megohms $\frac{1}{4}$ watt	C8	50 $\mu\mu$ F mica					Battery switch
R6	4 megohms $\frac{1}{4}$ watt	C9	0.05 μ F 200 v. working					LOUDSPEAKER.
R7	1 megohm $\frac{1}{4}$ watt	C10	0.025 μ F 400 v. working					3 1/2 inch Permanent Magnet.....
		C11	50 $\mu\mu$ F mica					BC1

D.C. RESISTANCE OF WINDINGS.

Winding	D.C. Resistance in ohms
Oscillator Coil	
Primary (L2)	2
Secondary (L3)	8
I.F. Transformer Windings	30
Loudspeaker Input Transformer (T1)	
XJI Primary	350
XJI Secondary	*

*Less than 1 ohm.

The above readings were taken on a standard chassis, but substitution of materials during manufacture may cause variations, and it should not be assumed that a component is faulty if a slightly different reading is obtained.

MECHANICAL REPLACEMENT PARTS.

Item	Part No.	Item	Part No.
Aerial assembly	21825	Hinge assembly	21993
Bracket, volume control	22694	Insulator	21773
Cabinet		Knob	21828
Back moulding	21986	Panel, front	21766
Body assembly	21982	Socket, valve	19965
Lid assembly	21981	Strap, clamp	21843
Dial assembly	21784	Strip, tag. 1 way	21761
		1 way	7628